

## ABSTRACT OF THE DISCLOSURE

The present invention relates to laser diodes with single mode emission at high output powers, as well as to structures and processes facilitating simple manufacture of such a devices. The invention includes a semiconductor laser (10) with a semiconductor substrate (11), a laser layer (13) arranged on the semiconductor substrate, an array of waveguide ridges (18) arranged at a distance from the laser layer, and several strip-shaped lattice structures (23) arranged on the flat surface between the waveguide ridges. The lattice structure (23) is formed on an insulating or barrier layer (26) at a distance from the laser layer above the laser layer (13). Processes for the production of such a semiconductor laser are also disclosed.